USDA Hurricane Georges Recovery Program
Special Objective 1
"Damaged Rural Watersheds Rehabilitated through Strengthened Local Capacity."

SECTION II: DETAILED ACTIVITIES BY COUNTRY

F. COUNTRY PROGRAM DESCRIPTION--Haiti

1. Background and Objectives

Years of deforestation and agricultural practices that are not compatible with the steep hillside landscape of Haiti placed many of the country's agricultural areas at high risk of excessive soil erosion and landslides. In late September of 1998, Hurricane Georges crossed the small island nation and caused extensive damage, particularly in the southern regions of the country . The already vulnerable condition of Haiti's watersheds meant that Hurricane Georges' impact on small hillside farming communities was particularly severe (figures 1 and 2).

Figure 2. Typical degraded hillsides in Haiti. Trees have been removed for construction and charcoal and the land is being farmed.

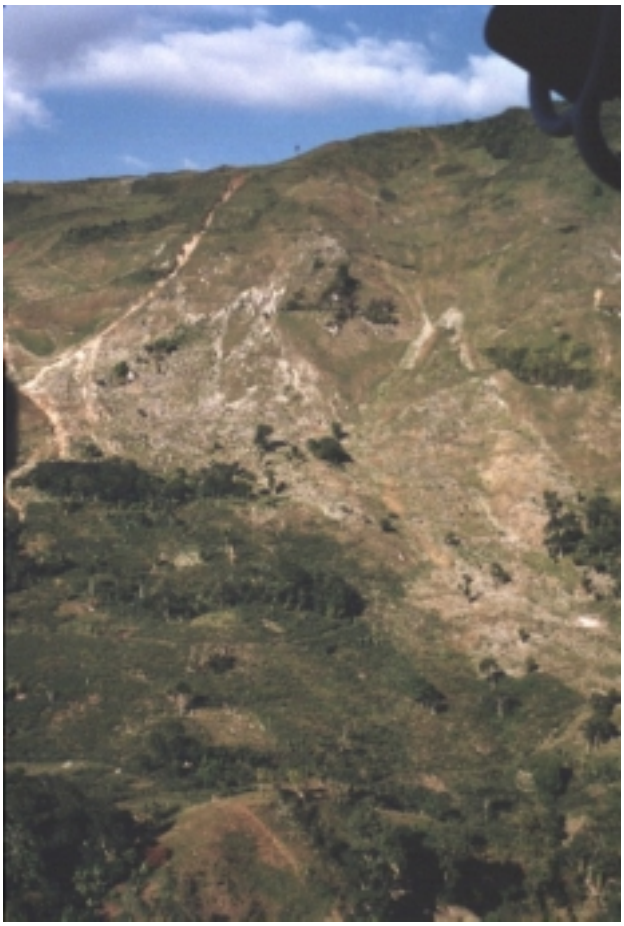

Figure 2. Hurricane Georges worsened already severe hillside erosion. Thin soils were eroded away exposing bare rock.

Consistent with its programmatic focus in other countries, the USDA identified rehabilitation of individual watersheds as the focal point of its reconstruction effort. Appropriate watershed management practices must be used to protect the lands ability to regulate water runoff, conserve scarce soil and forest resources, protect rural infrastructure, and provide for the myriad of products and environmental services required by the agricultural economy.

The USDA's watershed approach strategically linked forests, agricultural zones, roads, and watercourses, which aimed to rehabilitate watersheds and assist rural communities affected by Hurricane Georges.

Results Framework

Special Objective 1 (SpO 1) was addressed through a combination of two intermediate results in Haiti:

- Land and Water Resources Rehabilitated in Priority Watersheds (IR2)
- Local Capacity to Mitigate Future Storm Effects Strengthened. (IR 3)

This approach was consistent with the objectives of USAID/Haiti's Hurricane Georges Recovery Program (HGRP).

Planned implementation activities

The USDA's planned activities aimed to stabilize steep slopes and eroded watercourses (ravines) through a series of specific interventions. These were:

- Planting of trees on vulnerable sites to stabilize the shallow and fragile soils
- Construction of contour structures (rock walls, soil bunds, vegetative strips) to reduce runoff and stabilize soils on hillsides
- Reclaim eroding gullies and ravines for agricultural production using rock walls barriers to slow water flow and trap eroding soil
- Provide training to local residents to enable them to continue these activities after the project ends.

In addition, USDA was asked by USAID/Haiti to devote a limited amount of technical assistance in support of their overall HGRP program.

Key Accomplishments/New Technologies

USDA worked closely with three organizations in Haiti and consulted extensively with the Pan American Development Foundation (PADF). PADF was contracted by USAID/Haiti to lead the overall reconstruction effort for USAID/Haiti by means of sub-grants to numerous NGOs in Haiti. The three organizations that the USDA worked closely with were Catholic Relief Services (CRS), the Committee for the Economic Recovery of Musac (COREM) and the Peace Corps.

The USDA did not introduce technologies that could be classified as new. Various soil conservation practices are being promoted in Haiti for use on steep slopes that are effective when installed correctly. Typically, barriers are constructed (rocks walls, sandbags, windrows, vegetative hedgerows, etc.) along the contours of hillsides and gullies to slow down the erosive force of runoff water. Soil carried by runoff water is deposited upslope behind the barriers and over time creates terraces that can greatly increase the productivity and sustainability of hillside agriculture. Such interventions have the potential to significantly reduce the negative impacts of farming on steep slopes. While USDA did not see a need to introduce any new farming technologies we did carefully evaluate the practices that were being implemented by different organizations

then selected several efforts to reinforce and expand upon. In most cases USDA took a non-traditional approach to providing assistance. Rather than funding exclusively international NGOs to oversee our assistance efforts, we also established working agreements directly with community-based organizations, which increased the amount of money that we were able to put into these efforts. In addition, we did not have a full-time program manager based in Haiti, which significantly reduced our operating costs.

Relatively new, and being particularly promoted by USDA, is the use of digital photography and handheld global positioning system (GPS) units to document the exact physical locations of structures as well as site conditions before and after treatment. An important contribution USDA is making in Haiti is to document current and past efforts and to evaluate their effectiveness. Through use of the Internet, USDA will be able to rapidly share findings and develop a database that can be consulted by practitioners and researchers alike. USDA made good use of the Internet to keep in regular contact with our development partners. Travel and communications are difficult in Haiti, but in most major areas, people can access the Internet. This link made it possible for USDA to more directly participate in our HGRP funded efforts.

Specific Accomplishments by Activity and Partnering Organization

Under the HGRP, USDA provided financial and technical guidance to six community-based organizations: CRS, COREM, and four other community-based organizations who partnered with Peace Corps. The map of Haiti in Figure 3 indicates the location of USDA funded projects in Haiti. The overall goal of these organizations was to rehabilitate watershed areas damaged by Hurricane Georges, in doing so they made the following specific accomplishments.

Total Number of Trees Planted: 103,758

Catholic Relief Services	67,330 fruit and forestry trees
COREM	30,000 fruit and forestry trees
Peace Corps	6,428 fruit and forestry trees*

- Peace Corps partners produced an additional 6,500 fruit and forestry trees in the nurseries, but the trees were not planted due to a lack of rain. The trees will be planted during the spring rainy season in April 2002.

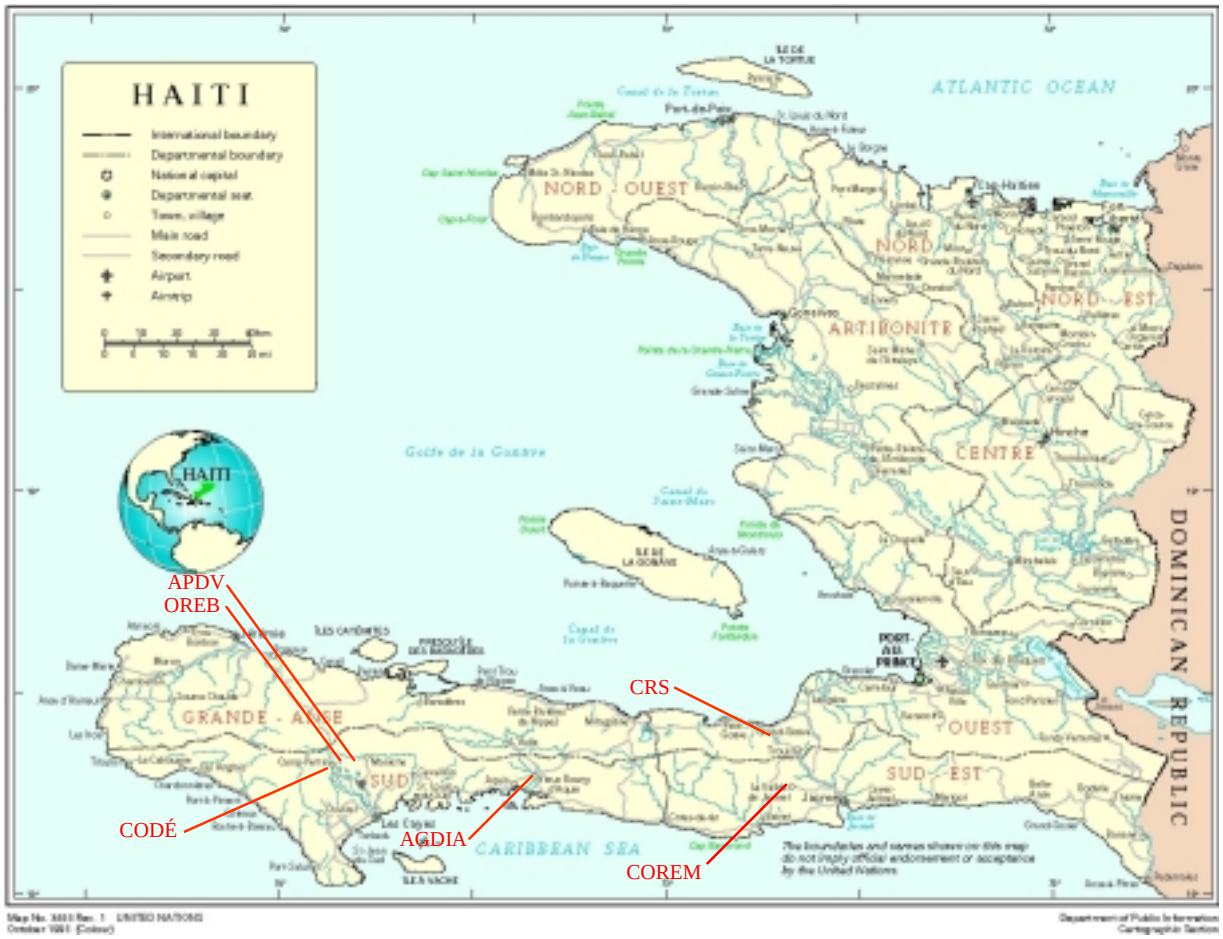

Figure 3. Location of project sites within Haiti

Rock and soil-filled bag barriers constructed in gullies: 5,521cubic meters

Catholic Relief Services	2,000 m^3
COREM	1,159 m^3
Peace Corps	2,362 m^3

Figure 4. Rock barriers constructed in gully at USDA project site

Contour plantings with shrubs, trees, or grass: 37,550 lineal meters

Catholic Relief Services	30,000 meters
COREM	30,050 meters
Peace Corps	11,715 meters

Figure 5. A hillside treated with vegetated contour strips (August Gully-USDA project site).

Total area protected with conservation structures: 74 hectares

Catholic Relief Services	32
COREM	30
Peace Corps	12

USDA's Role in Coordination, Evaluation, and Consultation

Dr. Roy Jemison, a research hydrologist from the USDA Forest Service, was the lead technical coordinator of USDA's program in Haiti. He was joined on several field assessment missions by Scott Lewis, SpO1 Manager within USDA for the Haiti project. In addition to meeting with USDA's grantees and visiting field sites, Dr. Jemison was asked to participate in a number of evaluation and design missions in support of HGRP as

well as their related Hillside Agricultural Project.

Field Assessment of the Effectiveness of Soil Conservation Practices

Dr. Jemison noted that despite more than 25 years of soil and water conservation projects, there had never been a comprehensive review of just how well various soil conservation interventions actually perform over time. Current practices are based on what "seems" to work well, but the nature of development funding is such that when projects end there is very little retrospective review of the validity of practices utilized, and certainly no longer term review (5, 10, 15 years plus) of the overall impact of soil conservation interventions in communities targeted by projects.

With USAID/Haiti concurrence, Dr. Jemison began in mid-2001 a field assessment of the effectiveness of conservation practices that have been used in Haiti. The first task was to review a sampling of soil conservation practices that have been and currently are being undertaken in Haiti. The objective is to ensure that the most appropriate techniques are being used as well as some indication as to how they have performed over time. These results are providing feedback to USAID and HGRP partners who can be used in future projects of this type. In addition, the findings will also assist USAID in characterizing the long-term impacts of activities funded under HGRP.

Dr. Jemison began this work by engaging a local-hire agronomist/technician (Mr. James Stenely Raphael) who has experience with many of the erosion control methods that have been used in Haiti. Dr. Jemison and Mr. Raphael established contacts with many of the NGOs and Government of Haiti (GOH) agencies that have been directly involved in the promotion of soil conservation activities. They have also contacted a number of researchers and consultants who have implemented similar assessments in Haiti, but on a limited basis. Dr. Jemison worked with the statistician at the Rocky Mountain Research Station to formalize the data collection and analysis procedures and Mr. Raphael began field assessments in October and November 2001.

In December 2001, USDA organized a two-day soil conservation workshop in Port au Prince, which brought together more than 40 interested parties (NGO, USAID, government of Haiti and others) undertaking soil conservation and hillside agriculture activities. This was the culmination of the first phase of USDA's review of the effectiveness of soil conservation practices. Through this workshop, USDA was able to establish contact with representatives of many of the organizations that have implemented soil conservation projects in Haiti and to determine which areas in the country should be concentrated upon with the study. All participants were given time to share their experiences.

Bringing together this diverse group of participants was instrumental for USDA and

others, because it brought to light the extensive amount of soil conservation efforts that have gone on in Haiti. It also demonstrated the vast wealth of knowledge and expertise that exists within Haiti. But it also reconfirmed the urgent need for mechanisms to help development workers to find out what conservation practices are being used successfully, under what conditions and who (organizations and/or persons) have the expertise and resources to assist them. Sharing of resources and expertise within the country will greatly reduce the expense of technology transfer. The proceedings of this workshop, which includes the participants list, and website, under development, will serve as mechanisms to help conference participants and other interested parties to work closer together.

Host Counterpart Organizations

USDA's approach in Haiti was to maximize the utility of its modest budget (the smallest of all the Hurricane-affected countries) by augmenting the work of on-the-ground organizations having an established field presence and direct links to communities. This took place by direct funding of field activities and by providing technical assistance from a specialist from the US Forest Service.
This ensured that a significant share of USDA's Hurricane resources went to actual rehabilitation work in the field. By working with established organizations and their existing field staff, USDA technical assistance was targeted at project expansion, project enhancements, and technical coordination and information sharing among the numerous entities working under the recovery program.

USDA's first implementation agreement was with **Catholic Relief Services**, which has a long-term presence in Haiti. CRS was already working under USAID's HGRP and the USDA assistance enabled them to expand their work.

USDA also entered into an implementation agreement with a community-based organization called the "Committee for the Economic Recovery of Musac", known as **COREM**. COREM is located in the SouthEast Department of Haiti in an area (*commune*) known as *La Valle*. COREM had extensive experience working with CRS in the past, but the grant agreement with USDA was the first time they ventured out on their own to implement a project without the involvement of an international NGO.

Finally USDA collaborated with the **Peace Corps** by setting up a very modest small grants fund available to communities (assisted by Peace Corps Volunteers) that wished to undertake watershed rehabilitation. Four projects were funded at about $1500 each. These community-based organizations were:

- Organization for the Rehabilitation of Boufa (OREB)
- Developement Collective (CODE)
- Association and Group for Development and Education (AGDIA)

- Organization for the Development of Vilou (APVD)

USDA's choice of a mix of organizations with a long-term presence in Haiti and actual Haitian community-based organizations will maximize the likelihood that this work and new similar activities will be carried on. COREM, OREB, CODE, AGDIA, and APVD will continue to work in their communities, since these groups consist of local community members. In addition, we expect that both the Peace Corps and CRS will continue to provide technical assistance and training in Haiti for a long time to come.

Practical Impact

To the people of Haiti, the real benefits of USDA's participation in the HGRP can only been measured over time as the country recovers economically, emotionally, and socially from the damage caused by Hurricane Georges. Positive impacts that we observed, heard and perceived include:

- Conservation structures (rock walls, vegetated contour terraces, etc.) that reclaimed eroded ravines and degraded hillside areas for crop and fruit tree production.

- Salaries for those that participated in the restoration activities, which allowed them to meet immediate financial needs. Women were major benefactors in this respect, at times making up more than 60% of the work force (figure 6).

- Technical expertise to design and construct soil conservation structures. Local farmers were trained in all aspects of project implementation.

- Environmental awareness of soil erosion processes and how to reduce them at the farm and watershed scales.

- Community organization, participation, and problem solving. These skills are not common practices in rural areas.

Figure 6. Haitian women benefited directly through work and training opportunities provided by USDA. These women were paid a salary to construct rock walls.

Additional Measures to Protect the Investment/Recurring Costs

Most of USDA's resources resulted in the placement of actual physical and biological soil conservation structures on hillsides and within gullies in or near vulnerable communities. Anecdotal evidence indicates that after conservation structures are in place farmers will generally maintain those that are functioning well to the extent that they are still cultivating the fields where the structures have been placed.

One of the biggest constraints to farmer adoption of improved soil conservation practices is the high cost of the initial investment (in time and materials). Since the USDA has subsidized this there should not be a particular need for additional funding at these same sites to insure that the investments made are maintained. This calls for a break in tradition. Prior to Hurricane Georges many farmers had grown accustom to relief organizations paying the total cost of conservation improvements and repairs in their fields. With the implementation of the HGRP, USAID and its' partner organizations used a 3-2-1 payment system. Under this system, participants agreed to work 6 days per week.

For three days they received a salary. For two days their salary was paid into a community fund. The final day of the week was done for free, as community service. In addition, all participants had to be a member of a community-based organization. A general feeling is that the strict requirements of HGRP limited the program participants to those individuals that had a vested interest in the community watersheds or their own field, if it was one that was selected by the community organization to be restored.

It should be remembered that the target communities in Haiti have very low incomes and that Haitian farmers live close to the subsistence level. Thus the target communities certainly need and would benefit from continued overall development assistance in all the primary sectors (health, education, agriculture, etc.).

Other Activities to Consider to Mitigate Future Disasters

To help the people of Haiti mitigate future disasters, USDA could provide more proactive than reactive assistance. In the case of Hurricane Georges, USDA provided technical and financial assistance to rehabilitate areas damaged during the hurricane. Now that that HGRP has ended, USDA could continue to provide similar assistance to farmers in areas not reached by the program. This assistance would help these communities adopt appropriate agricultural and watershed management practices that will better prepare then to endure the potential damaging and life threatening effects of hurricane. Specific activities could include:

- Demonstration and encouragement of the reforestation of degraded and denuded areas with fruit trees and forestry trees that have economic value.

- Direct reinforcement and support of community-based organization such as COREM, OREB, APDV and CODE. As these organizations gain experience in project development and management, working directly with them will be the more cost-effective route to provide aid to people in rural areas.

- Develop and support activities that help improve conditions for women.

- Water is a limiting factor for most activities in the rural areas. In many areas, family members spend the better part of a day walking to get water for daily domestic needs. Help with cost effective water collection, storage and distribution systems in needed. Reducing the amount of time people spend collecting water would greatly free up their time to participate in other activities.

Budget for the Haiti HGRP: US$ 171,172